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Explanation of Significant Differences:

GENERAL ELECTRIC CO/SHEPHERD FARM
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SECOND EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE REMEDIAL ACTION

GENERAL ELECTRIC/SHEPHERD FARM SITE EAST FLAT ROCK, HENDERSON COUNTY NORTH CAROLINA

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SECOND EXPLANATION OF SIGNIFICANT DIFFERENCES TO THE REMEDIAL ACTION GENERAL ELECTRIC/SHEPHERD FARM SITE EAST FLAT ROCK, HENDERSON COUNTY, NORTH CAROLINA

1.0 INTRODUCTION

This Explanation of Significant Differences (ESD) was prepared for the General Electric/Shepherd Farm Superfund Site ("Site"). This is the second ESD for this Site. The first was issued in September 1998.

The purpose of this ESD is to document that the Environmental Protection Agency (EPA or the Agency) is modifying the original remedy requirements for the General Electric (GE) Subsite in the Record of Decision (ROD) for the Site. EPA previously issued the GE ROD on September 29, 1995. The original requirements and goals of the September 1995 ROD modified by the September 1998 ESD are reiterated in Section 4 below. The necessity of this ESD is based on information generated during the development of the Site's Remedial Design (RD). The new information is summarized in Section 6 below. These modifications are:

1. Delete the requirement for in-situ groundwater remediation for contaminated groundwater across the entire Site; and

2. Change the discharge location of treated groundwater from Bat Fork Creek to the GE operational facility.

This ESD is issued pursuant to Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C Section 9617(c), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Section 300.435(c)(2)(I). A copy of this ESD will be added to the Site Administrative Record and to the Information Repository, both of which can be found in the Henderson County Public Library or in EPA's Region 4 Records Center. The public is encouraged to review both the Administrative Record and the Information Repository during normal working hours.

2.0 SITE LOCATION AND DESCRIPTION

The GE/Shepherd Farm Site consists of two noncontiguous properties: the General Electric Lighting Systems (GELS) property and the Shepherd Farm property (Figure 1). The GE Subsite is located at the southeastern corner of Spartanburg Highway (U.S. 176) and Tabor Road (S.R. 1809) in East Flat Rock, Henderson County, North Carolina. This slightly hilly, approximately 50-acre Subsite is bounded on the west by Spartanburg Highway, on the north by Tabor Road, and on the east by Bat Fork Creek. The southern boundary is a fence line south, east, and west of the recreational facility. General Electric also owns the plot of land located southwest of Spartanburg Highway, south of Bat Fork Creek, between the curved railroad tracks and the highway. The GE Subsite includes the GE manufacturing and distribution facilities.

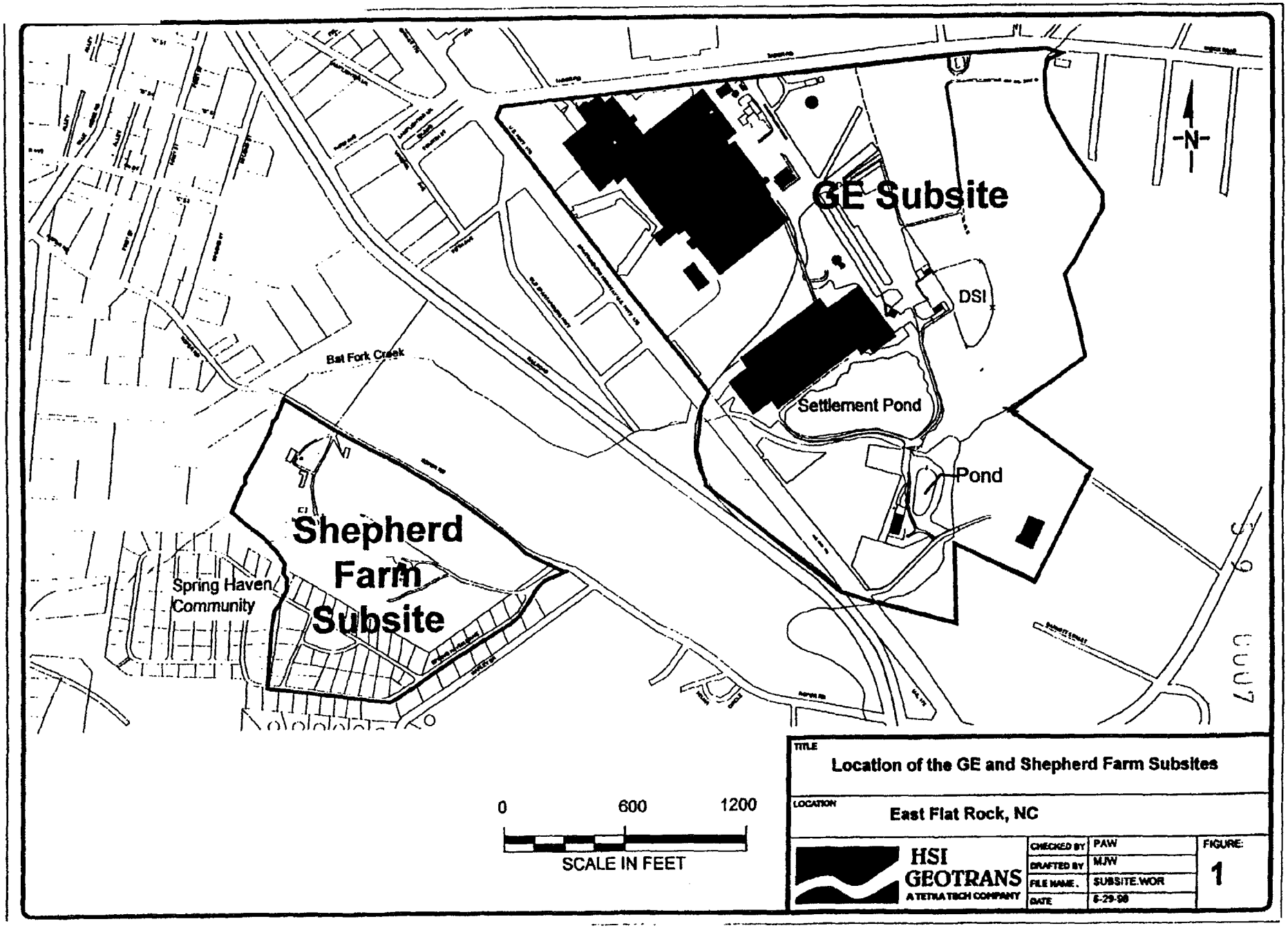
The Shepherd Farm Subsite is located on Roper Road, approximately 1200 feet west of Spartanburg Highway and southwest of the GE Subsite. This hilly, approximately 31-acre Subsite is bounded on the north by Roper Road, on the north-northwest by the Seldon Hill Farm, and on the west by Bat Fork Creek. It is comprised of both residential and agricultural land.

3.0 SITE HISTORY

From 1955 to present, the GE facility has been used to develop, design, and manufacture complete high-intensity-discharge luminaire systems, which consists of the assembly of optical components, ballasts, mountings, and high mast lowering devices. These lighting systems have many uses which include the illumination of roadways, sports arenas and related buildings and/or parking lots, indoor industrial and/or commercial complexes, and hazardous or dangerous location applications (NUS, 1991a).

Operations at the facility are comprised of several manufacturing processes. Raw aluminum is smelted and die-cast into molds of light fixture housings. Strip aluminum is machined by a spin and die process into reflectors that are attached to the housings. These reflectors are finished in a metal finishing, polishing, or coating process to yield a highly machined, polished or satin surface, as desired (NUS, 1991a).

From about 1955 until 1975, GE also manufactured "constant-current" transformers at this facility. These transformers were filled with poly-chlorinated biphenyls (PCB)-containing oil. GE has reported that PCBs are no longer used in their product line.


GE Subsite
DSI
Settlement Pond
Pond
Bat Fork Creek
Shepherd Farm Subsite
Spring Haven Community
-N-
0
600
1200
SCALE IN FEET
TITLE
Location of the GE and Shepherd Farm Subsites
LOCATION
East Flat Rock, NC
HSI GEOTRANS
A TETRA TECH COMPANY
CHECKED BY PAW
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FILE NAME. SUBSITE.WOR
DATE 6-29-98
FIGURE:
1

Waste streams generated by GE's facility from the beginning of plant operations have included construction wastes, buffing compound, epoxy compound, phenolic residue, paint sludges, PCB capacitors, solvents, transformer oil, electrical insulators/capacitors, waste acids, dye cast mold released hydrocarbons, heavy petroleum greases, and varnish residues. These waste streams contain many volatile organic compounds (VOCs), heavy metals, acids, and PCBs.

Waste disposal activities carried out by GE during the 1950s and 1960s have been poorly documented. Recent information from a former GE employee, however, indicates that at least two former landfills (Landfills A and B) were operated during this time period. Landfill A received waste generated by the facility between 1955 and the 1960s. No information is available concerning the types of wastes, but it is assumed that the wastes are from the manufacturing process utilized during this time of operation. Landfill B is believed to have been operated during the 1970s, and presumably received only construction debris. Wastewater generated as a result of plant processes, contains metals and solvents typically used during lighting system manufacture.

From 1955 until 1975, GE also generated a substantial quantity of PCB wastes as a result of transformer production. Disposal of these wastes prior to 1980 is not well documented, but in 1984, PCB wastes were sent to Emelle, Alabama for disposal. It is possible that PCB-containing electrical components were deposited along with other wastes, into the dried sludge impoundment or the waste treatment ponds.

From approximately 1957 to 1970, GE wastes were also deposited at the Shepherd Farm property where it was dumped, burned, and bulldozed in an approximate 3-acre area onsite. At the time of the dumping, the only other use of the property was for the Shepherd's residence. The Spring Haven manufactured homes community was later constructed over part of the dumping area. Most of the waste was reportedly deposited into an old dry pond or ravine approximately 800 feet southwest of the Shepherd residence. When the path leading to the ravine was icy, however, the waste was placed along the path. Additionally, according to GE representatives, waste solvents were also probably disposed of at Shepherd Farm.

4.0 RECORD OF DECISION

The ROD was signed on September 29, 1995, and addresses groundwater and soil contamination at the Site. The major components of the selected remedy, as depicted in the 1995 ROD and modified in the September 1998 ESD include:

- Extraction of groundwater from the GE and Shepherd Farm Subsites that is contaminated above Maximum Contaminant Levels or the North Carolina Groundwater Standards, whichever are more protective for each contaminant;

- On-site treatment of extracted groundwater via air stripping and carbon adsorption;

- Discharge of treated groundwater to Bat Fork Creek

- In-situ bioremediation of contaminated groundwater.

- Continued analytical monitoring for contaminants in groundwater and surface water.

- Excavation of the top foot of soils contaminated above the performance standards at the Shepherd Farm Subsite; transportation of excavated soils to the Dry Sludge Impoundment (DSI) Area on the GE Subsite; and backfilling, grading, and revegetation of excavated areas.

- Excavation of Landfills A and B; transport of contents to the DSI; Backfill with clean fill.

- Placement of a multi-layer cap on the DSI on the GE Subsite; continuous maintenance of the cap; and usage restrictions on the capped area.

5.0 STATUS OF REMEDIAL DESIGN AND REMEDIAL ACTION

The RD for soil and groundwater was initiated on September 30, 1996. The design of the soil remediation activities was completed in April 1999, while the design for the groundwater remediation activities identified in the ROD is still ongoing. The RD for groundwater is scheduled to be completed in July 2000.

The remedial action (RA) activities for soil have been completed. The contamination in the top foot of soils in the Shepherd Farm Subsite was fully characterized and removed to the GE DSI in November 1997. For the GE Subsite, the contents of Landfills A and B were excavated and transported to the DSI. The DSI was then capped with a multi-layer cap. This action was completed in December 1999.

In addition, a small scale groundwater extraction and treatment system has been operational on the GE Subsite since September 1997.

6.0 RATIONALE FOR ESD

There are three types of post-ROD changes. Depending on the extent or scope of the modification being considered, the post-ROD change is either (1) non-significant or minor; (2) significant; or (3) fundamental. A different documentation procedure is associated with each type. For non-significant or minor changes, these changes are documented by recording the change in the post-decision document file. The dissemination of a fact sheet to the public is optional. For significant changes to a ROD or RA, these changes should be documented in an ESD, as required by CERCLA and the NCP. Notice is sent to the public for their information. Fundamental changes to the remedy should be documented in a ROD amendment with public comments.

EPA has determined that the changes and additions covered by this ESD constitute a significant change to the original scope of the remedy selected in the ROD. Therefore, an ESD is appropriate to document these changes.

In the 1995 ROD, EPA proposed to remediate the groundwater by in-situ bioremediation and extraction/treatment of contaminated groundwater via air stripping and carbon adsorption with discharge of the treated groundwater to Bat Fork Creek.

Through this document, EPA is setting forth a change in the decision regarding groundwater treatment. During the remedial design, a treatability study was conducted to determine if in-situ bioremediation was feasible at this Site. A laboratory study was conducted under controlled conditions to identify site-specific factors affecting the rate and extent of reductive dechlorination of contaminants at the Site. The twelve-week long microcosm study found that only partial dechlorination of tetrachloroethene (PCE) to dichloroethene (DCE) was taking place despite the addition of various nutrients. The conclusion of the study was that complete dechlorination of PCE would not occur under any conditions at the Site and therefore, full-scale implementation of in-situ bioremediation would perform poorly in the field and was not recommended.

In addition, EPA is setting forth a change in the decision regarding treated groundwater discharge. Instead of discharge to Bat Fork Creek, GE will discharge all treated groundwater to the GE plant for use as process water in their current operations.

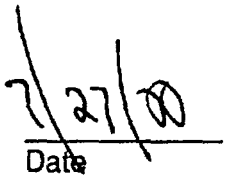
7.0 STATUTORY DETERMINATIONS

EPA has considered the new information that has been developed and the modifications made to the selected remedy by this ESD and believes that the remedy selected in the ROD remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable at this Site.

8.0 PUBLIC NOTIFICATION

In accordance with Section 117(c) of CERCLA, EPA published a notice of the ESD in the local newspapers, which describes the ESD and its availability for review. An ESD Fact Sheet was also prepared and mailed out to the persons on the Site mailing list.

Richard D. Green, Director
Waste Management Division



Date